

Title (en)  
LIGHT EMITTING DIODE DEVICES

Title (de)  
LEUCHTDIODENVORRICHTUNGEN

Title (fr)  
DISPOSITIFS À DIODES ÉLECTROLUMINESCENTES

Publication  
**EP 4238139 A1 20230906 (EN)**

Application  
**EP 21887134 A 20210921**

Priority

- US 202063107916 P 20201030
- US 202117193053 A 20210305
- US 2021051172 W 20210921

Abstract (en)  
[origin: US2022140198A1] Described are light emitting diode (LED) devices comprising a mesa with semiconductor layers, the semiconductor layers including an N-type layer, an active layer, and a P-type layer. A patterned transparent conductive oxide layer is on the top surface of the mesa. The patterned transparent conductive oxide layer has a first portion with a first thickness and a second portion with a second thickness, the second thickness less than the first thickness. Optical loss of the LED is reduced in the thinned region of the transparent conductive oxide layer.

IPC 8 full level  
**H01L 33/20** (2010.01); **H01L 33/36** (2010.01); **H01L 33/44** (2010.01)

CPC (source: EP KR US)  
**H01L 33/20** (2013.01 - EP KR US); **H01L 33/38** (2013.01 - EP KR); **H01L 33/42** (2013.01 - EP KR US); **H01L 2933/0016** (2013.01 - EP KR US)

Designated contracting state (EPC)  
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Designated extension state (EPC)  
BA ME

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
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